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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,204	03/26/2004	Daryl Chapman	GP-302076	1948
65798	7590	01/31/2008		
MILLER IP GROUP, PLC GENERAL MOTORS CORPORATION 42690 WOODWARD AVENUE SUITE 200 BLOOMFIELD HILLS, MI 48304			EXAMINER LEWIS, BEN	
			ART UNIT 1795	PAPER NUMBER
			MAIL DATE 01/31/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/811,204	Applicant(s) CHAPMAN ET AL.	
	Examiner Ben Lewis	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3,5 and 8-10 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,5 and 8-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                               | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                      | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. The term "slower" in claim 3 is a relative term which renders the claim indefinite. The term "slower" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hamada et al. (JP 11-191422) in view of James et al. (U.S. Patent No. 6,406,805 B1).

With respect to claim 1, Hamada et al. disclose a fuel cell system (title) which comprise a fuel cell stack (10) with cathode input gas supply fan (70) and hydrogen anode input gas supply line (46). (See Figs. 1 and 2).

With respect to an accumulator, Hamada et al. disclose a hydrogen/water separator (54) (accumulator) connected to the hydrogen exhaust line (Paragraphs 0019-0021).

With respect to a bleed valve for selectively bleeding the anode exhaust gas accumulated in the accumulator, Hamada et al. teach that valve (80) (bleed valve) is connected to the hydrogen/water separator (accumulator) (Paragraph 0022-0023).

With respect to combining the bleed anode exhaust gas from the bleed valve with cathode exhaust gas, Hamada et al. teach that unreacted gas from the anode flows to mixer (78) and cathode air side is also connected to mixer (78) by air exhaust pipe (86) (Paragraphs 0022-0024).

Hamada et al. do not specifically teach a purge valve coupled to the anode exhaust line. However, James et al. disclose a fuel cell system wherein a fuel cell controller 24 controls the operation of the fuel cell 10. When the controller 24 determines that the fuel cell 10 requires purging, the controller 24 signals a three-way valve 26 (purge valve) to move from a closed position to a first position. When the valve 26 is in the first position, the purged hydrogen, other gases, and water are directed to a water removal device 28 (accumulator) (Col 3 lines 64-67; Col 4 lines 1-25). Therefore

it would have been obvious to one of ordinary skill in the art to incorporate the purge valve of James et al. into the fuel cell system of Hamada et al. in order to control purging of hydrogen exiting the fuel cell and prevent build up of hydrogen in the fuel cell (Col 4 lines 45-67).

With respect to claim 2, Hamada et al. teach that valve (80) (bleed valve) is connected to the hydrogen/water separator (accumulator) (Paragraph 0022-0023) ~~{Examiner notes that valve (80) bleeds exhausted hydrogen from the separator~~ (54)(accumulator) to the mixer (78)}.

With respect to claim 3, Regarding "wherein the bleed valve bleeds the anode exhaust gas from the anode exhaust gas line at a slower rate than the purge valve purges the anode exhaust gas." Examiner notes that apparatus claims must be structurally distinguishable from the prior art. Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). "[A]pparatus claims cover what a device is, not what a device does." Hewlett Packard Co. V. Baush & Lomb Inc., 909 F.2d 1464, 1469, 15 USPQ2s 1525, 1528, (Fed. Cir.1990).

Examiner also notes the system of Hamada et al. as modified by James et al. discloses a bleed valve and a purge valve. Both valves are connected to control mechanisms and are capable of being opened and closed.

With respect to claim 5, Hamada et al. teach that unreacted gas from the anode flows to mixer (78) and cathode air side is also connected to mixer (78) by air exhaust pipe (86) (Paragraphs 0022-0024). Hamada et al. teach that the mixed anode and cathode exhaust is discharged from an exhaust duct (Paragraph 0024) (See Figs 1 and 2).

6. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamada et al. (JP 11-191422) in view of James et al. (U.S. Patent No. 6,406,805 B1) and further in view of Kumar (U.S. Patent No. 5,785,298).

With respect to claims 8-9, Hamada et al. as modified by James et al. disclose a fuel cell system (title) which comprise a fuel cell stack (10) with cathode input gas supply fan (70) and hydrogen anode input gas supply line (46). (See Figs. 1 and 2). Hamada et al. as modified by James et al. teach that valve (80) (bleed valve) is connected to the hydrogen/water separator (accumulator) (Paragraph 0022-0023).

Hamada et al. as modified by James et al. do not disclose wherein the bleed valve is a spring-based solenoid valve. However, Kumar discloses a proportional solenoid-controlled fluid valve assembly (title) wherein, solenoid valves disclosed by Kumar are used in precision fluid flow regulation systems, for example of the type that require precise regulation of the rate of flow of a fluid, such as pneumatic or hydraulic regulation, and is particularly directed to the configuration of a new and improved solenoid-driven valve control structure, through which the output force and axial

displacement imparted by the solenoid to a spring-biased valve control mechanism, and thereby fluid flow through an associated fluid flow-regulating valve assembly, may be controlled so as to be proportional to the application of an electrical current to the solenoid (Col 1 lines 1-17).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute a spring-based solenoid controlled valve of Kumar for the bleed valve of Hamada et al. as modified by James et al. because Kumar teach that fluid flow through an associated fluid flow-regulating valve assembly, may be controlled so as to be proportional to the application of an electrical current to the solenoid (Col 1 lines 1-17).

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hamada et al. (JP 11-191422) in view of James et al. (U.S. Patent No. 6,406,805 B1) and further in view of Kumar (U.S. Patent No. 5,785,298).

With respect to claim 10, Hamada et al. as modified by James et al. disclose a fuel cell system (title) which comprise a fuel cell stack (10) with cathode input gas supply fan (70) and hydrogen anode in put gas supply line (46). (See Figs. 1 and 2). Hamada et al. as modified by James et al. teach that valve (80) (bleed valve) is connected to the hydrogen/water separator (accumulator) (Paragraph 0022-0023).

Hamada et al. as modified by James et al. do not disclose wherein the purge valve is a spring-based solenoid valve. However, Kumar discloses a proportional

solenoid-controlled fluid valve assembly (title) wherein, solenoid valves disclosed by Kumar are used in precision fluid flow regulation systems, for example of the type that require precise regulation of the rate of flow of a fluid, such as pneumatic or hydraulic regulation, and is particularly directed to the configuration of a new and improved solenoid-driven valve control structure, through which the output force and axial displacement imparted by the solenoid to a spring-biased valve control mechanism, and thereby fluid flow through an associated fluid flow-regulating valve assembly, may be controlled so as to be proportional to the application of an electrical current to the solenoid (Col 1 lines 1-17).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute a spring-based solenoid controlled valve of Kumar for the purge valve of Hamada et al. as modified by James et al. because Kumar teach that fluid flow through an associated fluid flow-regulating valve assembly, may be controlled so as to be proportional to the application of an electrical current to the solenoid (Col 1 lines 1-17).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ben Lewis whose telephone number is 571-272-6481. The examiner can normally be reached on 8:30am - 5:30pm.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ben Lewis

Patent Examiner  
Art Unit 1795

  
PATRICK JOSEPH RYAN  
SUPERVISOR, PATENT EXAMINER